



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,235	08/22/2003	Dominique Billicres	1035-SC4287	9381
34456	7590	10/18/2005		
TOLER & LARSON & ABEL L.L.P. 5000 PLAZA ON THE LAKE STE 265 AUSTIN, TX 78746			EXAMINER MCNEIL, JENNIFER C	
			ART UNIT	PAPER NUMBER

1775

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/646,235

Applicant(s)

BILLIERES ET AL.

Examiner

Jennifer C. McNeil

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 15-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-14, drawn to a ceramic article, classified in class 428, subclass 701.
- II. Claims 15-19, drawn to a method of forming a ceramic article, classified in class 427, subclass 252.
- III. Claims 20-33, drawn to a semiconductor wafer processing apparatus, classified in class 118, subclass 723.
- IV. Claims 34-40, drawn to a method for processing semiconductor wafers, classified in class 438, subclass 460.

The inventions are distinct, each from the other because of the following reasons:

Inventions III and IV are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process is used to carry out a materially different process, specifically a process having a magnetic field and halogen gas processing component, which are not required by the apparatus.

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by

Art Unit: 1775

another and materially different process (MPEP § 806.05(f)). In the instant case the product may be made by a materially different process, such as sputtering.

Inventions II and III and IV are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions the method of making a ceramic article is unrelated to an apparatus or a method of using the apparatus.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Jeff Abel, a provisional election was made with traverse to prosecute the invention of Group I, claims 1-14. Affirmation of this election must be made by applicant in replying to this Office action. Claims 15-40 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamada et al (US 2002/0018921). Yamada teaches a gas plasma resistive member comprising an alumina body and a yttria coating thereon. The coating has a peeling resistance of not less than 15 MPa. Regarding the limitation of claim 1 which requires the ceramic article be free of intervening layers between the substrate and the corrosion-resistant coating, the coating of Yamada is formed directly upon the alumina substrate with no intervening layers formed there between. The reaction product formed between the yttria and the alumina is solely a byproduct of the yttria being directly deposited onto the alumina. Regarding claims 3-5, the article may be used as chamber walls in a semiconductor processing apparatus. Additionally, an example wherein there is no reacted layer present and also has an MPa of 18 is found in Table 1-4. Regarding claims 6-8, examples are given where the MPa exceeds 30. Regarding claim 9, while the method in which the yttria is deposited is not considered to structurally define the article, Yamada teaches application via thermal spray.

Claims 1-9 are rejected under 35 U.S.C. 102(e) as being anticipated by O'Donnell et al (US 6,620,520).

Art Unit: 1775

O'Donnell teaches a zirconia coating that may be formed on alumina substrates. The coating may be formed via thermal spraying, and the article may be used for semiconductor processing apparatus chamber walls. While O'Donnell does not specify the peeling strength of the coating, as the substrate (alumina) and coating (ceramic) are formed by methods (thermal spray) commensurate with the instant claims, the article formed would be fully expected to have similar characteristics. It has been held that where the claimed and prior art products are identical or substantially identical in structure or are produced by identical or a substantially identical processes, a *prima facie* case of either anticipation or obviousness will be considered to have been established over functional limitations that stem from the claimed structure. *In re Best*, 195 USPQ 430, 433 (CCPA 1977), *In re Spada*, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed products. *In re Best*, 195 USPQ 430, 433 (CCPA 1977).

Claims 1, 6-9, 11, 13, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Kato et al (US 6,939,607). Kato teaches a cutting tool comprising a substrate comprising alumina, and a ceramic coating thereon. The ceramic coating has an average grain size of 0.1-0.5 microns. While Kato does not specify the peeling strength of the coating, as the substrate (alumina) and coating (ceramic) are formed by methods (CVD as disclosed in the instant specification on page 9), and grain size commensurate with the instant claims, the article formed would be fully expected to have similar characteristics. It has been held that where the claimed and prior art products are identical or substantially identical in structure or are produced by identical or a substantially identical processes, a *prima facie* case of either anticipation or obviousness will be considered to have been established over functional limitations that stem from the claimed structure. *In re Best*, 195 USPQ

Art Unit: 1775

430, 433 (CCPA 1977), *In re Spada*, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed products. *In re Best*, 195 USPQ 430, 433 (CCPA 1977).

Claims 1-9, 11, 13, and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamada et al (US 2004/0067392). Yamada teaches a corrosion resistant member comprising a substrate of alumina, and a yttria/alumina coating thereon. The coating has a peeling strength greater than 30 MPa. The coating has a grain size of 0.1-100 microns. The article may be used as a component in a semiconductor processing apparatus, such as a wall.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al (US 2002/0018921). Yamada teaches a ceramic article having an alumina substrate and a yttria coating thereon. Yamada teaches that the yttria may have an average particle size of 2 microns, but does not give additional sizes. Absent a showing of unexpected results, it would have been obvious to one of ordinary skill at the time of the invention to use particle sizes which would meet the required function and use. Regarding claim 12, Yamada does not expressly teach alpha alumina. Absent a showing of unexpected results, it would have been obvious to one of ordinary skill in the

Art Unit: 1775

art at the time of the invention to select a known material on the basis of its suitability for the intended use as a matter of obvious engineering choice (*In re Leshin*, 125 USPQ 416).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Donnell et al (US 6,620,520). O'Donnell does not expressly teach alpha alumina. Absent a showing of unexpected results, it would have been obvious to one of ordinary skill in the art at the time of the invention to select a known material on the basis of its suitability for the intended use as a matter of obvious engineering choice (*In re Leshin*, 125 USPQ 416).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al (US 6,939,607). Kato does not expressly teach alpha alumina. Absent a showing of unexpected results, it would have been obvious to one of ordinary skill in the art at the time of the invention to select a known material on the basis of its suitability for the intended use as a matter of obvious engineering choice (*In re Leshin*, 125 USPQ 416).

Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al (US 2004/0067392). Yamada does not expressly teach alpha alumina. Absent a showing of unexpected results, it would have been obvious to one of ordinary skill in the art at the time of the invention to select a known material on the basis of its suitability for the intended use as a matter of obvious engineering choice (*In re Leshin*, 125 USPQ 416).

Regarding the grain size, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the compositional proportions taught by Yamada '392 overlap the instantly claimed proportions and therefore are considered to

Art Unit: 1775

establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that;

“The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003).

Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer C. McNeil whose telephone number is 571-272-1540. The examiner can normally be reached on 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jennifer McNeil
October 16, 2005